

In the claims:

Please amend claims 1, 8, 9, 14, 17 and 18. The status of the claims is as follows:

1. (Currently Amended) A method for compressing a distributed integrated circuit model comprising the steps of:

selecting at least a first net from a plurality of nets contained in the distributed integrated circuit model, each of said plurality of nets being a distributed RC model; and

compressing at least a second net connected to said first net by removing all resistors from the distributed RC model of said at least a second net, and assigning said at least a second net a total capacitance representing a sum of all capacitors on said at least a second net.

2. (Original) A method for compressing a distributed integrated circuit model as defined by claim 1 wherein said at least a second net is isolated from said first net by a transistor.

3. (Original) A method for compressing a distributed integrated circuit model as defined by claim 1 wherein said first net and said second net are contained within a single netlist.

4. (Original) A method for compressing a distributed integrated circuit model as defined by claim 1 wherein:

said at least a first net comprises a plurality of first nets defining a power grid, and said at least a second net comprises a plurality of secondary nets each being connected to said power grid and isolated from said power grid by a transistor.

5. (Original) A method for compressing a distributed integrated circuit model as defined by claim 1 further comprising the steps of:

compressing said at least a first net by removing all resistors from said net and summing all capacitors from said net.

6. (Original) A method for compressing a distributed integrated circuit model as defined by claim 5 wherein said at least a second net comprises a plurality of second nets all connected to said first net and downstream of said first net.

7. (Original) A method for compressing a distributed integrated circuit model as defined by claim 6 wherein said plurality of second nets comprise all nets connected downstream of said first net and upstream of an inverter.

8. (Currently Amended) A method for performing an electromigration analysis on a distributed integrated circuit comprising the steps of:

selecting a group of first nets defining a power grid from a netlist, each net of said netlist ~~said netlist~~ comprising a distributed RC model;

compressing a plurality of secondary nets from said netlist connected to said power grid and isolated from said first net by a transistor by removing resistors from the distributed RC model of said secondary nets and assigning to each of said secondary nets a total capacitance value equal to the sum of capacitance of all the capacitors on respective of said secondary nets; and

performing an electromigration analysis on said power grid using said first nets and said compressed secondary nets.

9. (Currently Amended) A method for performing a gross current estimation on a distributed integrated circuit comprising the steps of:

selecting a first net to perform the gross current estimation on, said first net having a distributed RC model;

compressing said first net by removing all resistors from the distributed RC model of said first net and summing all capacitors on said first net;

compressing at least a secondary net connected to said first net and downstream of said first net by removing all resistors from an RC distributed model of said at least a secondary net and summing all capacitors on said at least a secondary net; and

calculating a gross current estimation for said first net using said compressed at least a secondary net.

10. (Original) A method for performing a gross current estimation on a distributed integrated circuit as defined by claim 9, wherein said at least a secondary net comprises a plurality of secondary nets connecting said first net with a downstream inverter through which substantially no current flows.

11. (Original) A method for performing a gross current estimation on a distributed integrated circuit as defined by claim 10 wherein said inverter is selected from the group consisting of a gate terminal of a transistor or a transistor in an off condition.

12. (Original) A method for performing a gross current estimation on a distributed integrated circuit as defined by claim 9, wherein said first net has a current limitation, wherein said distributed model of said first net has a plurality of individual segments, and wherein the method further comprises the steps of:

determining whether said calculated gross current estimation for said first net exceeds the current limitations for said first net; and

un-compressing said first net if said calculated gross current estimation exceeds the current limitations for said first net by returning said compressed first net to a distributed model and performing a gross current estimation on said individual segments of said distributed model using said compressed at least a secondary net.

13. (Original) A method for performing a gross current estimation on a distributed integrated circuit as defined by claim 12 further comprising the step of:

selecting one of said compressed at least a secondary net to perform a gross current estimation on if said calculated gross current estimation for said first net does not exceed said first net current limitation; and

calculating a gross current estimation on said selected one of said compressed at least a secondary nets using said selected compressed one of said at least a secondary nets and remaining of said compressed at least a secondary nets.

14. (Currently Amended) A computer program product for compressing a distributed integrated circuit model, the program product comprising computer executable instructions embedded in a computer readable medium that when executed cause a computer to:

select at least a first net from a plurality of nets contained in the distributed model integrated circuit model, said at least a first net represented by an RC model; and

compress at least a secondary net connected to said first net by removing all resistors from a distributed RC model of said at least a secondary net and summing all capacitors on said at least a secondary net.

15. (Original) A computer program product for compressing a distributed integrated circuit model as defined by claim 14 wherein said at least a first net comprises a plurality of nets defining a power grid, and said at least a secondary net comprises a plurality of secondary nets connected to said power grid, each of said secondary nets isolated from said power grid by at least a transistor.

16. (Original) A computer program product for compressing a distributed integrated circuit model as defined by claim 14 wherein said program instructions when executed further cause the computer to compress said at least a first net by removing all resistors from said first net and summing all capacitors on said first net, and wherein said

at least a secondary net comprises a plurality of secondary nets connecting said first net with an inverter through which substantially no current flows.

17. (Currently Amended) A computer program product for performing an electromigration analysis on an integrated circuit power grid, the program product comprising computer readable instructions embedded in a computer readable medium that when executed cause a computer to:

compress a plurality of secondary nets connected to a plurality of first nets that define the power grid, each of said secondary nets isolated from said plurality of first nets by a transistor, wherein said compressing comprises removing resistors from a distributed RC model of said secondary nets and assigning to each of said secondary nets a total capacitance value equal to the sum of capacitance of all the capacitors on respective of said secondary nets; and

perform an electromigration analysis on the power grid using said first nets and said compressed secondary nets.

18. (Currently Amended) A computer program product for performing a gross current estimation on a distributed integrated circuit, the program product comprising computer executable instructions embedded in a computer readable medium, the instructions when executed causing the computer to:

select a first net to perform the gross current estimation on, said first net having a distributed model, compress said first net by removing all resistors from said first net and summing all capacitors on said first net;

compressing at least a secondary net by removing all resistors from a distributed RC model of said at least a secondary net and summing all capacitors on said at least a secondary net, said at least a secondary net being connected to said first net downstream of said first net and upstream of an inverter through which substantially no current flows; and

calculating a gross current estimation for said first net using said compressed at least a secondary net.

19. (Original) A computer program product for performing a gross current estimation on a distributed integrated circuit as defined by claim 18, wherein said first net has a current limitation, wherein said distributed model of said first net has a plurality of individual segments, and wherein the computer readable instructions when executed further cause the computer to:

determine whether said calculated gross current estimation for said first net exceeds the current limitations for said first net;

un-compress said first net if said calculated gross current estimation exceeds the current limitations for said first net by returning said compressed first net to said first net distributed model and performing a gross current estimation on individual segments of said first net distributed model individual segments using said compressed at least a secondary net; and

select one of said compressed at least a secondary nets to perform a gross current estimation on if said calculated gross current estimate for said first net does not exceed said first net current limitation; and

calculate a gross current estimation on said selected one of said compressed at least a secondary nets using said selected compressed one of said at least a secondary nets and remaining of said compressed at least a secondary nets.

20. (Original) A computer program product as defined by claim 18 wherein said at least a secondary net comprises a plurality of secondary nets, said plurality of secondary nets connecting said first net with said inverter.